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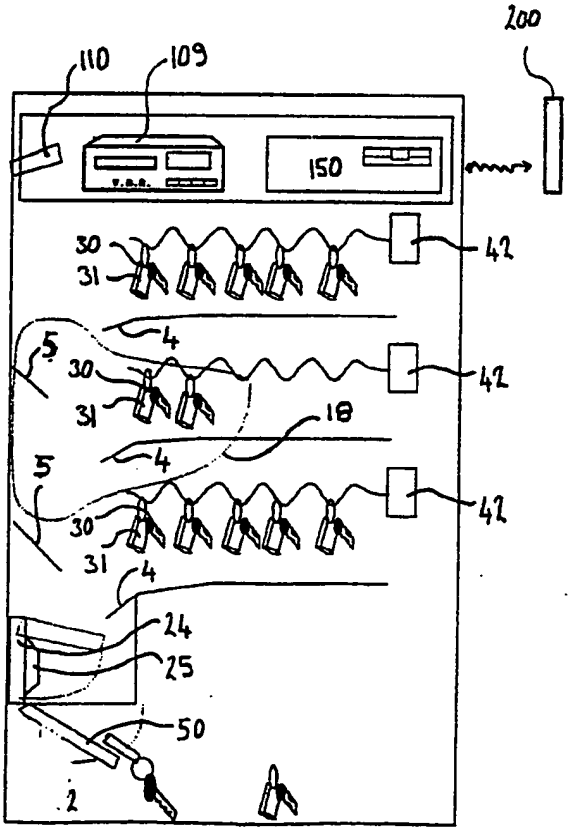
(54) Title: AUTOMATIC DISPENSING AND RECORDING SYSTEM

(57) Abstract

An automatic dispensing and recording system is disclosed for dispensing keys and beverages. The system comprises a vending unit (10) which supports the articles (30) and has a card reader (14) for receiving a credit card or token (16) to operate the vending unit. A computer (150-200) is coupled to the card reader for recording data on the card presented to the card reader (14) to identify a user and for billing purposes. Upon detection of valid data on the card and upon detection of the article (30) by a detector (52) a door (24, 106, 108) is opened to allow the article to be taken by a user. If valid information on the article is not read by the detector (52) the door (24, 106, 108) is not opened. A return facility comprising a door (130) which has a sensor (132) for detecting the article and which opens the door upon detection of the article is provided. The door (130) leads to a compartment (136) and after the door (130) is closed a further detector (144) detects the article in the secure environment and if detected opens a further door (142) to allow the article to drop to a storage area (134).



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AUTOMATIC DISPENSING AND RECORDING SYSTEM

This invention relates to an automatic dispensing and recording system and has particular application in the rental car and hotel fields but also has application in other environments where any article is to be provided under some sort of security condition.

Conventional methods of renting cars generally require the user to pre-book an automobile or to merely arrive at the rental car establishment. Regardless of whether the vehicle has been pre-booked or not it is usually necessary for the user to be attended to by office staff, provide various details and to then receive the key to the car allotted to that user. Similarly, in hotels it is normal for a guest to arrive at reception and to be checked in by hotel staff before being provided with a key to a room.

The object of this invention is to provide a quicker method of enabling a user to gain access to an article such as keys for a rental car, hotel room etc.

The invention may be said to reside in a dispensing and recording system for providing an article, said system comprising;

storage means for storing a plurality of articles;

input means for receiving input of data relating to a user;

means for releasing at least one of said article from the storage means to a dispensing station when valid data is inputted;

detection means for detecting information on said at least one article and for supplying said information relating to said article for recording along with said data to provide a correlation between said user and said at least one article;

means for enabling user access to said dispensing station to receive said at least one article after said detection means detects said information and the input of

valid data; and

means for preventing user access to said article if the detection means is not able to detect said information or if said information is not available on said article so that said article is not dispensed to the user and for allowing a further article to be presented for dispensing to the user.

The invention may be said to reside in a dispensing and recording system for providing an article, said system comprising;

storage means for storing a plurality of articles;

input means for receiving input of data relating to a user;

means for releasing at least one of said article from the storage means to a dispensing station when valid data is inputted;

detection means for detecting said at least one article and supplying information relating to said article for recording along with said data to provide a correlation between said user and said at least one article;

means for enabling user access to said dispensing station to receive said at least one article after said detection means detects said information and the input of valid data; and

open and closable access means for return of said article;

detection means for detecting said article after insertion into said access means and after said access means has closed.

Preferably, the input is by means of a credit card on which data relating to the user is recorded on a magnetic strip.

Preferably, said storage means comprises a vending unit so that upon insertion of the credit card and recognition of valid data on the credit card, the vending means is actuated to dispense at least one of said articles to the dispensing station.

Preferably, the detection means is arranged at the dispensing station and reads information provided on said article so that the information and data can be stored to provide a record of the user which has obtained the article, said detection means providing a signal to enable a door to be opened to allow the user access to the dispensing station and therefore to the article when it has been dispensed from the vending unit.

Preferably, the dispensing station includes further door so that in the event of information not being read or not being available on said article, said detection means actuates said further door to cause said article to drop to a secure secondary storage area and actuates said vending means to cause a further article to be delivered to the dispensing station.

Preferably the credit card is read by a credit card reader which upon detection of valid data actuates the vending unit.

In a second aspect the invention may be said to reside in a return system for allowing return of an article, said system comprising:

storage means for storing a returned article;

an openable and closable access means for providing access to said storage means;

opening and closing means for closing said access means;

sensor means associated with said access means for causing said opening and closing means to open said access means when valid data is sensed by the sensor means so that said article can be deposited in said storage means;

sensor means for detecting whether said article is in said storage means after said opening and closing means closes said access means to thereby ensure that said article has been safely deposited in said storage means.

Preferably, said sensor means associated with the access means comprises a sensor for sensing said article when placed in front of said access means, said storage

means having an interior access means, and said sensor means for detecting an article in the storage means comprises a second sensor so that when said article is deposited in the storage means and after the first access means is closed, the article can be detected by the second sensor which thereby opens the interior access means to allow the article to drop to a secure location in the storage means so that it cannot be accessed when further correct data is provided to said first sensor means to cause the first access means to open.

Preferably, said said system includes recording means for recording return of said article.

In a further aspect of the invention there is provided a dispensing and recording system for providing an article, said system comprising:

storage means for storing a plurality of articles;

input means for receiving input of data relating to a user;

means for releasing at least one of said articles from the storage means to a dispensing station when valid data is inputted and for providing information relating to said article to be provided; and

recording means for recording said information and said data to provide a correlation between the user and the article which has been dispensed.

Preferably, the storage means comprises a hotel vending unit such as a mini-bar fridge and the input means comprises a token supplied by the hotel for gaining access to the mini-bar.

Preferably, the token comprises the user's key for gaining access to the user's hotel room.

Preferably, the recording means comprises a computer for recording details relating to the user and the article which has been dispensed for billing purposes.

The preferred embodiment of the invention will be described, by way of example, with reference to the following drawings in which:

Figure 1 is a view of a dispensing unit embodying the invention;

Figure 2 is a schematic view showing operation of the unit of figure 1;

Figure 3 is a schematic view showing a number of units connected to a central processor;

Figure 4 is a view of a third system embodying the invention;

Figure 5 is a view along the line V-V of figure 4;

Figures 6 and 7 are views of a fourth embodiment of the invention;

Figure 8 is a view of a second embodiment of the invention;

Figure 9 shows a flow chart for rental procedure for prebooked vehicles;

Figures 10 and 10A show a flow chart for rental procedure for vehicles which are not prebooked;

Figures 11 and 11B show a flow chart for key collection procedure for fleet or pool cars;

Figure 12 shows a flow chart relating to fast key return procedure; and

Figures 13 and 13A show a flow chart relating to key return procedure for fleet cars.

With reference to figures 1 and 2, the system can be embodied in conventional container 10 similar to normal vending units which may or may not have a clear front panel to enable visual inspection of articles stored within the container.

The preferred embodiment of the invention will be described with particular reference to the car rental field and the container 10 has a front panel 12 which is provided with a slot 14 for receiving a credit card 16. A keyboard panel or touch screen 18 can be provided to provide an indication of the size or nature of vehicle required by the user. A docket collect slot 20 is also provided for delivery of a receipt after a transaction has been completed.

The container 10 also has a dispensing station 22 which is closed by a door 24 (see figure 2).

Inside the container 10 a number of keys 30 are provided on a standard vending unit 40 which may comprise spiral wires 40 driven by motors 42. Each of the spiral wires includes a plurality of the keys 30 which relate to a particular size car. For example, the top spiral 40 can hold keys for large cars, the second spiral can hold keys for a medium car and the bottom spiral can hold keys for a small car.

The dispensing station 22 includes a secondary door 50 arranged within the container 10. A detecting unit 52 is provided at the station 22 and may be in the form of a laser reader for reading bar codes or any other type of device for reading information on a remote object.

Each of the keys 30 is provided with a tag 31 upon which information is recorded relating to the car associated with those keys. For example, car registration number and other other information which may be required such as type of car, engine number etc.

In order for a user to obtain a car, the user would preferably be previously provided with a credit card issued by the rental car company. Upon issue of the credit card, the user's licence details, address etc. are recorded in a central computer 200 and data relating to the user and in some instances licence details etc. may be recorded on the credit card. The user therefore inserts the credit card 16 (shown in figure 1) into the slot 14 where it is read by a card reader to obtain the data relating to the user. Upon determination of valid data the computer will then cause a message to be displayed on screen 18 inviting the user to select one of the types of cars by touching the screen 18. For example, the user may choose to select a large car and will touch the part of the screen having the designation "large cars". Upon touching the screen 18 the motor 42 associated with the spiral which holds keys for large cars will be activated to rotate the spiral to cause the front key 30 to be dispensed off the spiral and to drop

to the dispensing station 22. Once the key drops to the dispensing station 22 the tag 31 is read by the detector 52 to provide the registration details relating to the car with which that key is associated. Upon a valid reading of that information the information is then forwarded to the central computer together with the data on the user's credit card so that the computer can store the details of the user and the vehicle which that user has rented by use of the system. After correct reading of the information on the tag 31 a signal is provided to door 24 to enable the door to open so that the user can remove the keys from the station 22 and merely locate the car and drive away. Thus, it is not necessary for the user to be attended to by staff at the rental establishment.

If desired, the rental cars could be unattended and stored in a secure area so that after the credit card 16 is used to gain access to a key, a separate signal is provided to automatic door controllers which gain access to the secure area so that the user can use his or her credit card in those door controllers to gain access to the area for a certain predetermined time (for example 30 minutes) after obtaining the keys. This will enable the user to gain access to the area by use of his credit card, locate the relevant car and drive away.

Should the detector 52 not read the tag 31 due to damage of the tag 31 or removal of the tag 31 from the keys so that there is nothing to read, or should the information read be incorrect, the detector 52 will cause a secondary door 50 to open thereby causing the key 30 to drop to a secondary storage area 55 within the container 10. If this signal is provided then after the key 31 has been dropped to the secondary storage 55, the spiral wire is again activated by the motor 42 to cause a further key to drop to the dispensing area 22 for reading by the detector 52. If this key is properly read then the door 24 can be opened.

The unit may include brakes 5 to soften key drop to the dispensing station 22 and slides 4 for guiding movement of the key when it is dropped off the spiral 40.

The screen 18 allows additional information to be inserted by the user if requested by the central computer via a message being displayed on the screen 18.

The central computer 200 may be linked to the card reader associated with the slot 14 and the detection device 52 via hard wiring or any other suitable transmission means for allowing information to be transmitted from the container 10 to the computer.

The system could also be programmed to enable use by any credit card, such as American Express card, Visa card or the like. In this embodiment, the credit card number would be used as identification of the user in accordance with normal credit card purchases and the client billed through the credit card service. In this embodiment, unless the user already has licence details and other information which the credit card company would require recorded with the credit company, the user could insert that information by means of the keyboard 18.

When the user has finished with the rental car, the user need only return the keys to the rental car establishment and they could be read either automatically by a detector or by office staff so that the tag 31 is read to show that the car has been returned.

Alternatively, the door 24 could be provided with a detector 25 on its rear surface which is able to detect the keys when the keys are held in front of the door 24. When a key is detected the door 24 can be opened to enable keys to be located on the door 50 whereupon the door 24 will close. After closing of the door 24 if the keys are detected by the detector 52 thereby indicating that the keys are securely within the container 10, the door 50 can open to enable the keys to drop into the storage area 55. The computer 200 having recorded return of the keys can then print a receipt docket acknowledging return of the keys and transmit a message indicative of return of the keys to a central processor for billing purposes.

Figure 3 shows a number of units 10 connected to a central processor 200.

Whilst the preferred embodiment of the invention has been described with reference to rental car establishments, the system could be used in hotels to enable hotel room keys to be automatically dispensed by use of a personal credit card or a credit card provided by a hotel chain. Furthermore, other articles such as video cassettes or the like could be dispensed with the unit to enable automatic dispensing and recording of the video cassette in association with the user who rents the item.

With reference to figures 4 and 5 which show a third embodiment of the invention, the container 10 includes two carousels 100 each of which has a plurality of compartments 102 for storing articles such as car keys. The carousels 100 are driven by separate stepper motors 104 for rotating the carousels to bring a desired compartment 102 into proximity to respective doors 106 and 108 which close openings 109 and 111 in the front face of the container 10. The stepper motors 104 may be provided with a locking clutch arrangement 105 for locking the stepping motor in a desired position after it has been indexed a certain amount to ensure that the carousels 100 cannot be rotated by hand when the doors 106 and 108 are opened. Locking may be performed by a pin (not shown) which is located into one of the plurality of openings 107 in the stepper motor to prevent further indexing of the stepper motor until the pin is withdrawn.

Door openers 113 and 115 are coupled to the doors 106 and 108 to selectively open and close the doors under the control of computer 150.

The front face of the container 10 has a keyboard 18 and a credit card reader 14. In this embodiment of the invention the container 10 also includes a video monitc 108 and a video camera 110. The video monitor 108 is adapted to display information relating to the system as well as advertising material and other information which may be of interest to a user. The video camera 110 is designed to monitor the environment of the system and in particular people who are using the system to obtain a

visual record of those people.

The carousels 100 are loaded with car keys having an identifying tag upon them and the compartment 102 associated with each key is recorded in computer 150 associated with the units or in the central computer 200 which communicates with the computer 150 in the units.

In order to use the system a customer may pre-book a specific vehicle and the keys associated with that vehicle are assigned to the customer ID card or credit card prior to the customer arrival at the system. Thus, the computer contains a memory of the compartment 102 in which those keys are located and assigns those keys to the particular user.

When the customer arrives at the unit he or she inserts a credit card or personal ID card into the card reader 14 and, if desired, types in a pin number for added security into the keyboard 18. When the data on the credit card and pin match that stored in the computer 150/200 the computer searches its memory for the car keys assigned to that data and cause the stepper motor 104 to index the carousel 18 until the relevant compartment is presented to the door 106 or 108 as the case may be. At this time the identifying tag on the keys is read by the reader 52 and when the correct data is read on the key tag the computer causes the door 106 or 108 to open so that the user has access to the compartment 102 which contains those keys. The user may then remove the keys and the door 106 or 108 will close again securing the unit.

The system may also include a docket printer 120 which can print a docket for the customer giving time and date of rental in the case of car rental, location of rental unit, the renter's name or ID, car registration number, other details of the car such a model, type, colour etc., duration of rental and cost of rental etc.

In an alternative embodiment of the invention instead of assigning particular car to the renter the system may only assign a specific range of cars that the customer is authorized to rent. For example, only low

powered medium cars or the like. The procedure is the same as that described above except that instead of immediately indexing the carousel to bring the keys to the door 106 or 108, the system first displays information relating to the first car identified in its store which belong to the specific range on monitor 108. The user has the option of selecting that car by a particular input into the keyboard 18 or rejecting that car. If the car is selected the carousel 100 is indexed by the stepper motor 104 to bring the keys to the door 106 or 108. If the car is rejected the next car in that specified range is displayed and so on until the customer makes his or her choice.

Once again, the door 106 or 108 will only open if the reader 52 actually detects the keys being available in the front of the door when the stepper motor indexes the carousel and identifies the data on those keys as belonging to the particular car selected by the user.

Figure 9 shows a flow chart showing the procedure for prebooked vehicles as described above.

Figures 10 and 10A show a flow chart for the procedure if a vehicle is not pre-assigned.

If a vehicle is not assigned to the customer the customer merely approaches the unit and inserts his credit card into the reader 14 and enters his pin number into the keyboard 18. The customer may then make a selection on the keyboard under instructions from information on the video monitor 108 to select a particular type of car such as a luxury case, large car, medium car, etc. The customer may then key in the number of days he wishes to rent the car and the computer searches its storage for the first available car belonging to the selected group of cars and the car description is displayed on the monitor 108. The user can reject the car or select the car in the manner described above and if the car is selected, the stepper motor 104 indexes the carousel 100 to present the correct keys to the door 106 or 108. Once again, the card reader 52 reads the tag associated with the keys and only opens the door if the correct information is read on the keys as

associated to the car selected by the user.

If the user goes through all vehicle in that range without selecting one the system will be set to an idle state and the user will again be required to insert his credit card to commence use of the system. A rental is not recorded against the customer until the keys are presented to the door 106 or 108 and taken from the carousel compartment 102.

The docket printer 120 may also print a docket containing the above identified information for the renter.

The information read from the user's credit card into the card reader 14 and the details of the car renter by the user are transmitted to the computer for storage in the computer for facilitate billing and recordal of the rental of the car.

In order to return the keys two modes are available depending on whether the system is used in a car rental situation or whether the car is merely in a car pool for random use by a number of user's.

In order to return the keys the user inserts his or her credit card into the reader 14 and depresses an appropriate button on the keyboard to indicate that keys are being returned. In the return mode, the computer 150 will select an empty compartment 102 of one of the carousels 100 and will index the carousel 100 so that the empty compartment 102 is presented to the door 106 or 108. The computer then opens the door 106 or 108 so that the keys can be placed in the empty compartment 102. The door 106 or 108 then closes and the system identified the key. The data on the key is associated with the information recorded when the car was taken out by the user and if the information sensed on the key matches that on the key given by the user the system records the time and date of return.

The data relating to the key together with the compartment 102 into which the key is located is recorded in the computer memory so that the location in the carousel 100 of that key is known. Thus, the position of the key in the carousel is known so the key can be dispensed when

required for reuse.

If the returned key cannot be identified because it is not a correct key or the tag is faulty or the like, the key is either returned to the user by opening the door or is stored in the container 10 and is not dispensed until a service operator collects it for test. This may be achieved by merely recording in the computer that an attempt to return an article has been made but not successfully to a particular compartment in the carousel 100. Since the compartment 102 can be recorded in the computer's memory the carousel can be indexed when required by a service man to present that compartment to the door 106 or 108 so the contents of the compartment can be inspected to determine if the key is faulty or if nothing was returned or if an incorrect article was located in the compartment.

In some embodiments the system can be programmed to request other details from the user before accepting the key such as the distance the vehicle has travelled, purpose of trip, destination etc. and the like. When the key is returned, the docket printer 120 may print a docket indicating time of return and identifying the key returned so as to provide physical proof of return of the key for the renter.

The information on the key is immediately transmitted to a computer so that return of the key is recorded in the computer.

If the vehicle is merely in a pool of cars which are to be used by any user, the key is made immediately reusable by another user upon presenting a correct ID or credit card to the card reader 14. Figures 11 and 11A show a flow chart for key collection in a car pool or fleet situation. Figures 13 and 13A show a flow chart relating to the return of keys in a fleet situation. If the system is being used by a car rental company the key can be placed into a non-active mode where it cannot be accessed by another user until the vehicle has been inspected, serviced and refilled with petrol. After this has occurred the key

can then be made available so that the vehicle can be rented by another customer.

In order to service the vehicle and refill it with petrol the rental company has the option of sending a service person to the unit to collect the key by inserting a special command into the key panel 18 so that the key is presented to the service person to enable the car to be driven to a service area and refilled with petrol. Alternatively, a separate set of keys may be retained by the rental company so that it is not necessary to access the unit 10 and from a remote location a service person can merely collect the car using the extra key and drive it to the service area.

The system shown in figures 4 and 5 may also include an express key return door 130 which can allow keys to be reintroduced into the system and stored in a secure location where they cannot be reissued until they are collected by a service person and after the vehicle associated with the keys is inspected and serviced etc. and then the keys are returned to the carousel 100.

The express return system will be described in more details with reference to figures 6 and 7 and the flow chart of figure 12 which show an embodiment which is only intended for return of articles such as car keys but not for dispensing the article to a user. The system shown in figures 6 and 7 can be included in the embodiments shown in figures 4 and 5 to provide express return via the door 130 as well as into the carousels 100 as previously described.

In the embodiments of figures 5 and 6 the return system comprises a container 10 which provides a secure storage area for the articles such as car keys. The container 10 has a front face which includes a monitor 108 a docket printer 120 an express return door 130 and a service door 140. The front face may also include a print button 125.

The door 130 is provided with a sensor 132.

The container 10 also has a key tray 134 and a compartment generally designated by reference 136. The

compartment 136 can be accessed by the door 130 and a second internal door 142 separates the compartment 136 from the key tray 134. The door 142 also includes a sensor 144 which is similar to the sensor 132.

The computer 150 controls the doors 130 and 144 as well as the sensors 132 and 144.

In order to return a key the user merely locates the key in front of the door 130 where the tag on the key or other data associated with the key can be sensed by the sensor 132. When the sensor 132 detects valid data relating to a key the computer 150 causes door lock 152 to open the door 130 so that the keys can be placed in the compartment 136. The door 144 is closed thereby separating the compartment 136 from the key tray 134. The user returns the keys into the compartment 136 and after a predetermined time period the door 130 is closed by the door lock 152. After the door 130 is closed the sensor 144 detects the keys in the compartment 136 and if correct data relating to keys is detected information relating to return of the keys is stored in the computer and the door lock 152 causes the door 144 to open thereby allowing the keys to pass into the key tray 144. The door 144 is then again closed to separate the compartment 136 from the key tray 134.

If after the door 132 is closed the sensor 144 does not record any article then return of the keys has not been successfully made and the computer 150 will not indicate any return of the article. Thus, by ensuring that the second sensor 144 detects the article after the door 132 is closed means that the article such as the keys is detected after being securely retained within the container 10 to ensure that the article has actually been returned and not merely slipped into the compartment 136 then quickly withdrawn before the door 132 closes. Thus, definite return of the article is assured as is recordal of the returned article in the computer 150. The computer 150 is coupled to a central computer (not shown) for downloading of data etc.

If desired, the user may press the print button to obtain a docket indicating that the article had been returned and which identifies the article returned and the time and place etc.

This embodiment of the invention may be used with articles other than cars such as cash bags which have an identification device attached to them so that the device may act as a nightsafe or other storage location for cash containers or the like.

Once again in this embodiment of the invention the video monitor 108 may display messages advising a user how to return keys by simply locating them in front of the door 130 and may also display advertising material and other information useful to a user can be provided by a video player 109.

In a further embodiment of the invention shown in figure 8, a vending unit such as a hotel mini-bar fridge 70 is shown which includes a plurality of shelves or other storage areas 72 for displaying articles to be dispensed. The articles can be alcoholic beverages, non-alcoholic beverages or other articles one would expect to find in a hotel mini-bar refrigerator. The refrigerator 70 includes an access slot 74 for receiving a token which carries data relating to the user. In this embodiment of the invention the token is preferably the hotel key provided by the hotel. The hotel key is preferably in the form of a magnetic key or card and the access slot 74 leads to a magnetic reader for reading data on the key or card.

The refrigerator 70 is connected to a computer 80 which is preferably located in the reception area of the hotel. When a valid key or card is entered into the slot 74 and read by the reader in the refrigerator 70, the computer 80 outputs a signal to enable a motor drive (not shown) or other device to activate one of the storage shelves 72 to enable an article to be dispensed. The particular shelf 72 which is activated depends on the appropriate button of the buttons 76 selected by the user to cause one of the articles on the appropriate shelf 72 to

be dispensed to an outlet opening (not shown) in the refrigerator 70. The mechanism for dispensing articles is common in vending machines and therefore will not be described herein in further detail.

Information relating to the shelf 72 which has been activated and therefore the article which has been dispensed is also provided to the computer 80 so that that information together with the data relating to the user read from the user's key or card is stored in the computer for billing purposes. Thus, the computer records an indication of the article which has been dispensed and the user which has obtained that article so that an appropriate item can be added to the user's hotel bill.

Other vending devices in the hotel could also be connected to the computer 80 and be accessed by a hotel guest's key or card so that information relating to t user and the article dispensed is also stored in the computer for billing purposes.

In this embodiment it would also be possible to use a conventional credit card so that items can be purchased via the credit card and billed to a user in a normal manner for credit card use by the establishment providing the credit card facility rather than by the hotel itself.

In this embodiment of the invention, the information relating to the articles dispensed can also be used for stock-keeping to determine when a mini-bar refrigerator is empty and requires refilling.

Since modifications within the spirit and scope of the invention may readily be effected by persons skilled within the art, it is to be understood that this invention is not limited to the particular embodiment described by way of example hereinabove.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A dispensing and recording system for providing an article, said system comprising;

storage means for storing a plurality of articles;

input means for receiving input of data relating to a user;

means for releasing at least one of said article from the storage means to a dispensing station when valid data is inputted;

detection means for detecting information on said at least one article and for supplying said information relating to said article for recording along with said data to provide a correlation between said user and said at least one article;

means for enabling user access to said dispensing station to receive said at least one article after said detection means detects said information and the input of valid data; and

means for preventing user access to said article if the detection means is not able to detect said information or if said information is not available on said article so that said article is not dispensed to the user and for allowing a further article to be presented for dispensing to the user.

2. A dispensing and recording system for providing an article, said system comprising;

storage means for storing a plurality of articles;

input means for receiving input of data relating to a user;

means for releasing at least one of said article from the storage means to a dispensing station when valid data is inputted;

detection means for detecting said at least one article and supplying information relating to said article for recording along with said data to provide a correlation between said user and said at least one article;

means for enabling user access to said dispensing station to receive said at least one article after said detection means detects said information and the input of valid data; and

open and closable access means for return of said article;

detection means for detecting said article after insertion into said access means and after said access means has closed.

3. The system of claim 1 or claim 2 wherein the input is by means of a credit card on which data relating to the user is recorded on a magnetic strip.

4. The system of claim 1 or claim 2 wherein said storage means comprises a vending unit so that upon insertion of the credit card and recognition of valid data on the credit card, the vending means is actuated to dispense at least one of said articles to the dispensing station.

5. The system of claim 1 or claim 2 wherein the detection means is arranged at the dispensing station and reads information provided on said article so that the information and data can be stored to provide a record of the user which has obtained the article, said detection means being for providing a signal to enable a door to be opened to allow the user access to the dispensing station and therefore to the article when it has been dispensed from the vending unit.

6. The system of claim 5 wherein the dispensing station includes a further door so that in the event of information not being read or not being available on said article, said detection means actuates said further door to cause said article to drop to a secure secondary storage area and actuates said vending means to cause a further article to be delivered to the dispensing station.

7. The system of claim 1 or claim 2 wherein the credit card is read by a credit card reader which upon detection of valid data actuates the vending unit.

8. A return system for allowing return of an

article, said system comprising:

storage means for storing a returned article;

an openable and closable access means for providing access to said storage means;

opening and closing means for closing said access means;

sensor means associated with said access means for causing said opening and closing means to open said access means when valid data is sensed by the sensor means so that said article can be deposited in said storage means;

sensor means for detecting whether said article is in said storage means after said opening and closing means closes said access means to thereby ensure that said article has been safely deposited in said storage means.

9. The system of claim 8 wherein said sensor means associated with the access means comprises a sensor for sensing said article when placed in front of said access means, said storage means having an interior access means, and said sensor means for detecting an article in the storage means comprises a second sensor so that when said article is deposited in the storage means and after the first access means is closed, the article can be detected by the second sensor which thereby opens the interior access means to allow the article to drop to a secure location in the storage means so that it cannot be accessed when further correct data is provided to said first sensor means to cause the first access means to open.

10. The system of claim 8 or claim 9 wherein said system includes recording means for recording return of said article.

11. A dispensing and recording system for providing an article, said system comprising:

storage means for storing a plurality of articles;

input means for receiving input of data relating to a user;

means for releasing at least one of said articles

from the storage means to a dispensing station when valid data is inputted and for providing information relating to said article to be provided; and

recording means for recording said information and said data to provide a correlation between the user and the article which has been dispensed.

12. The system of claim 11 wherein the storage means comprises a hotel vending unit such as a mini-bar fridge and the input means comprises a token supplied by the hotel for gaining access to the mini-bar.

13. The system of claim 11 wherein the token comprises the user's key for gaining access to the user's hotel room.

14. The system of claim 11 wherein the recording means comprises a computer for recording details relating to the user and the article which has been dispensed for billing purposes.

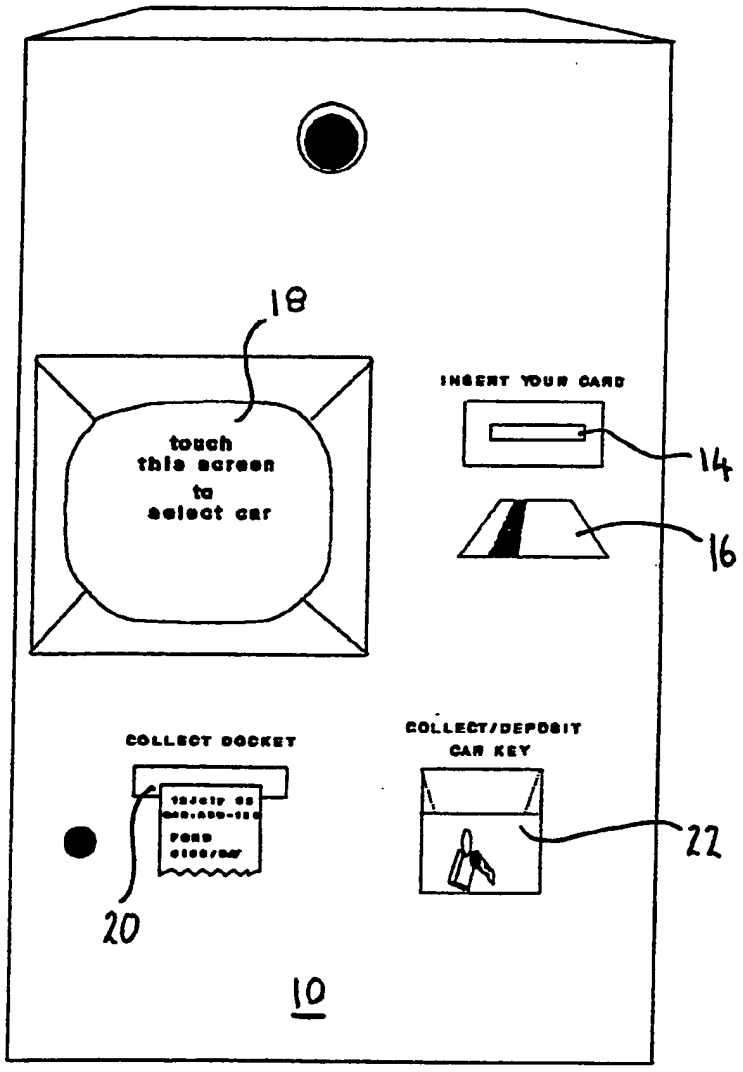

18
touch
this screen
to
select car
INSERT YOUR CARD
14
16
COLLECT DOCKET
COLLECT/DEPOSIT
CAR KEY
22
20
10

FIG 1

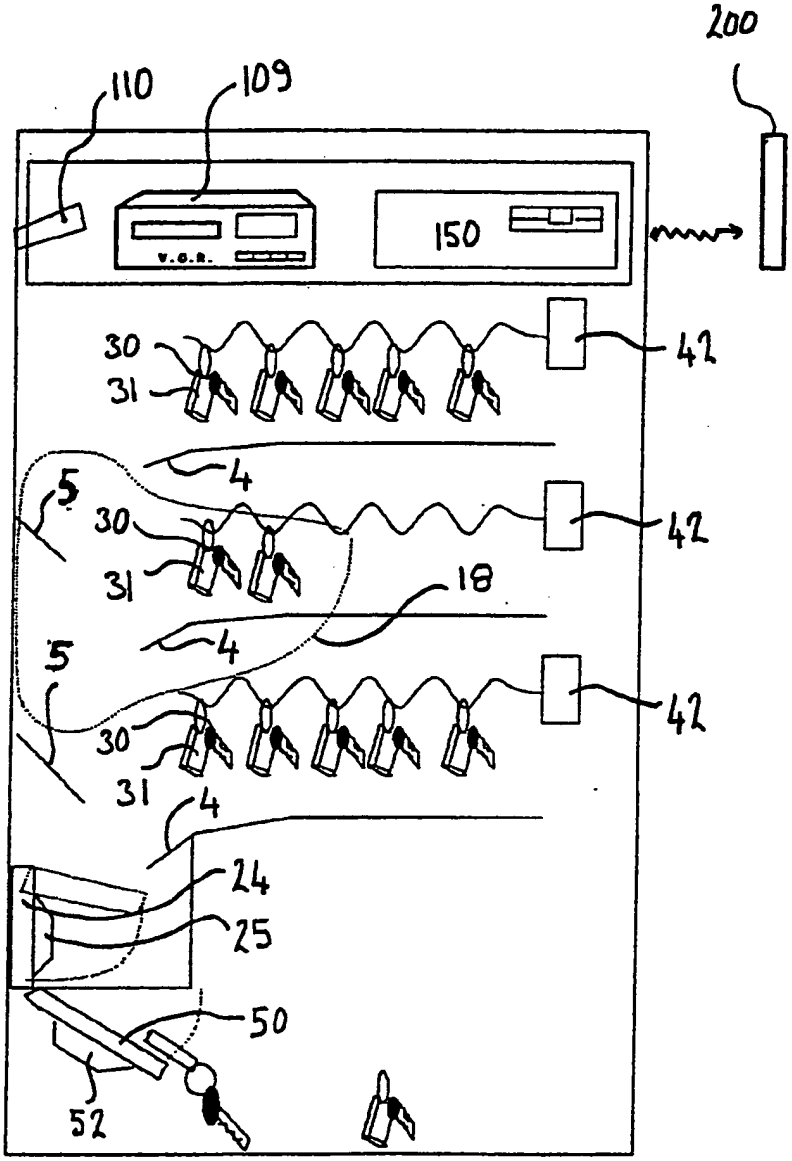


FIG 2

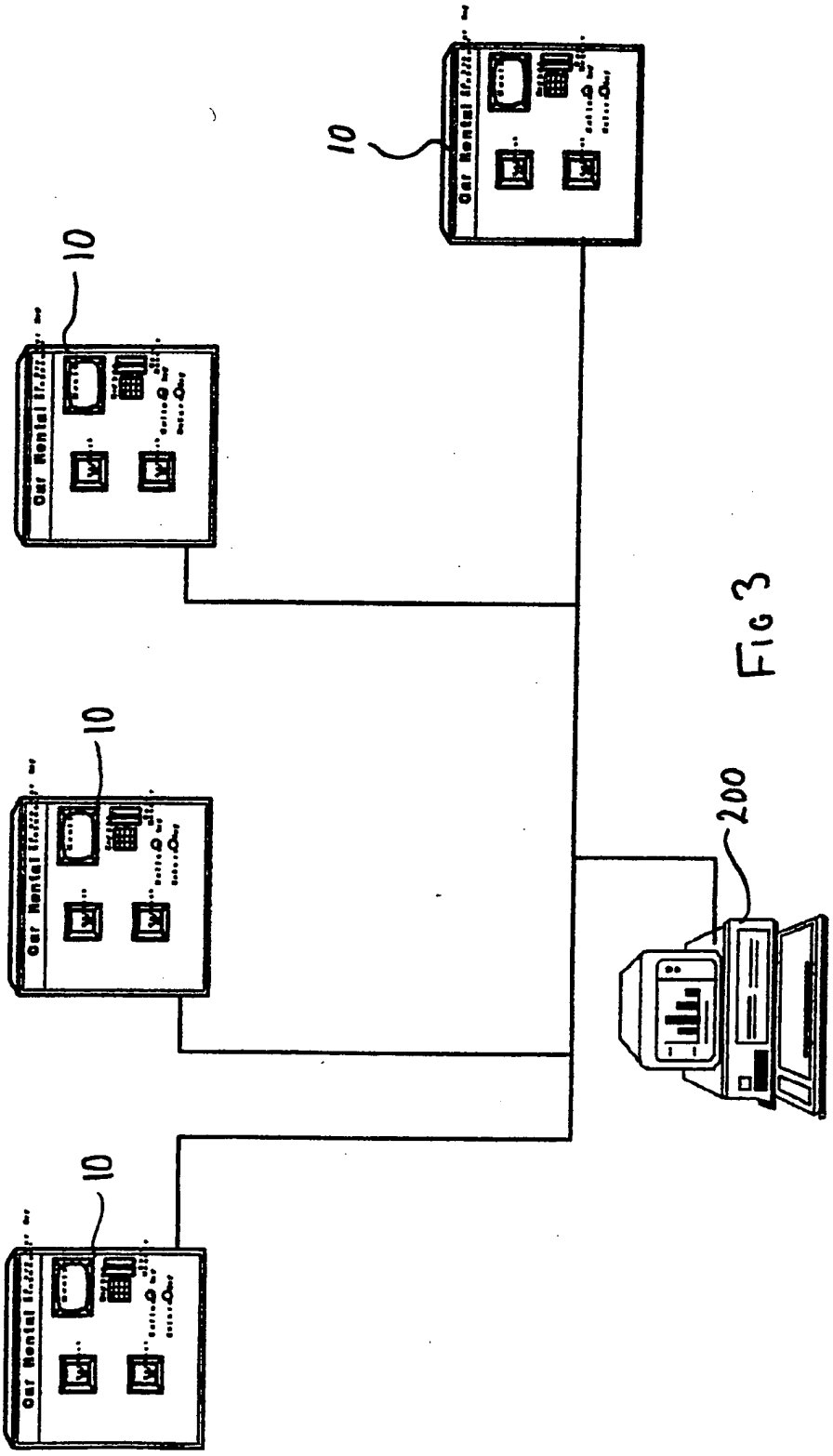
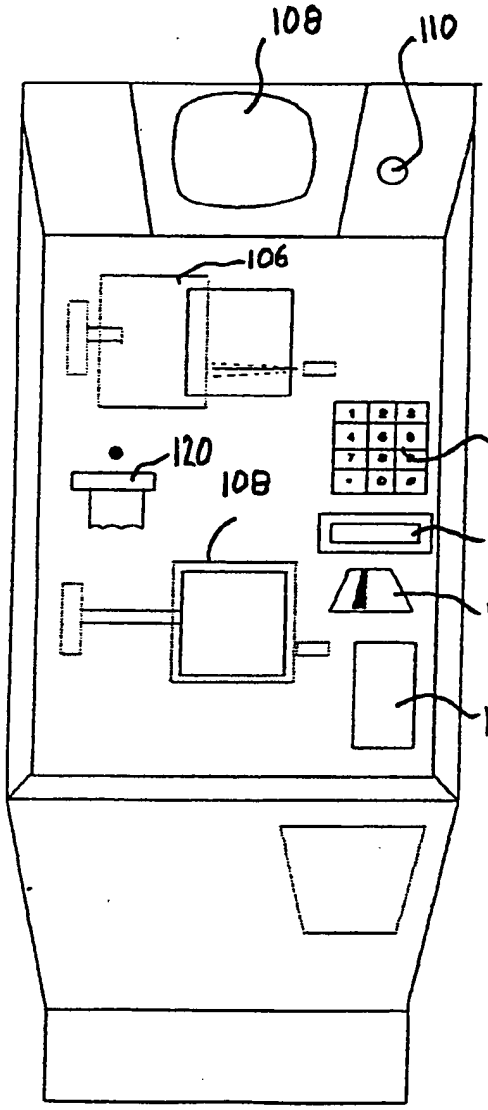


Fig 3


108
110
106
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108
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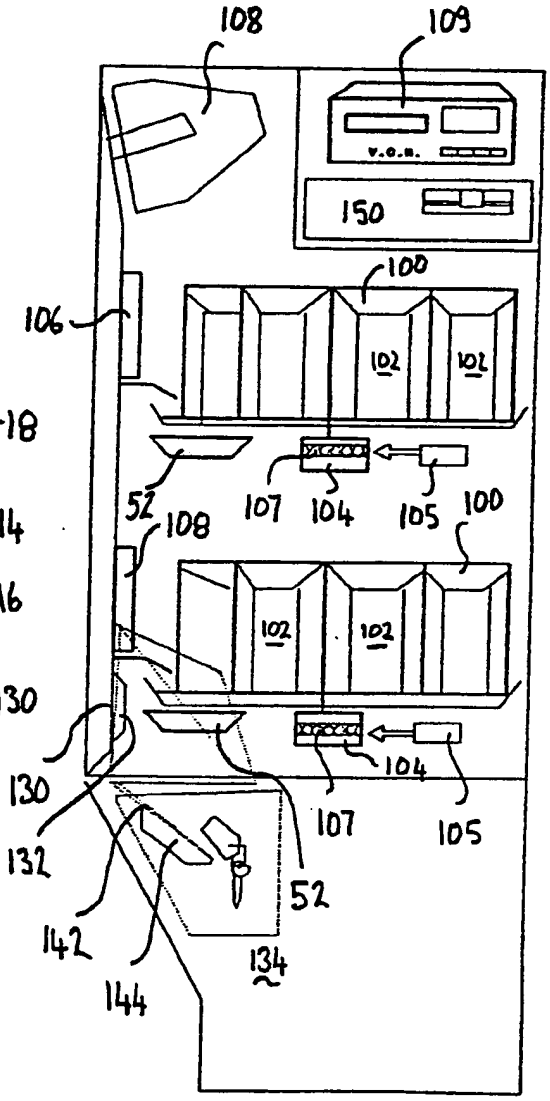
16
130

Fig 4


108
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134
144

Fig 5

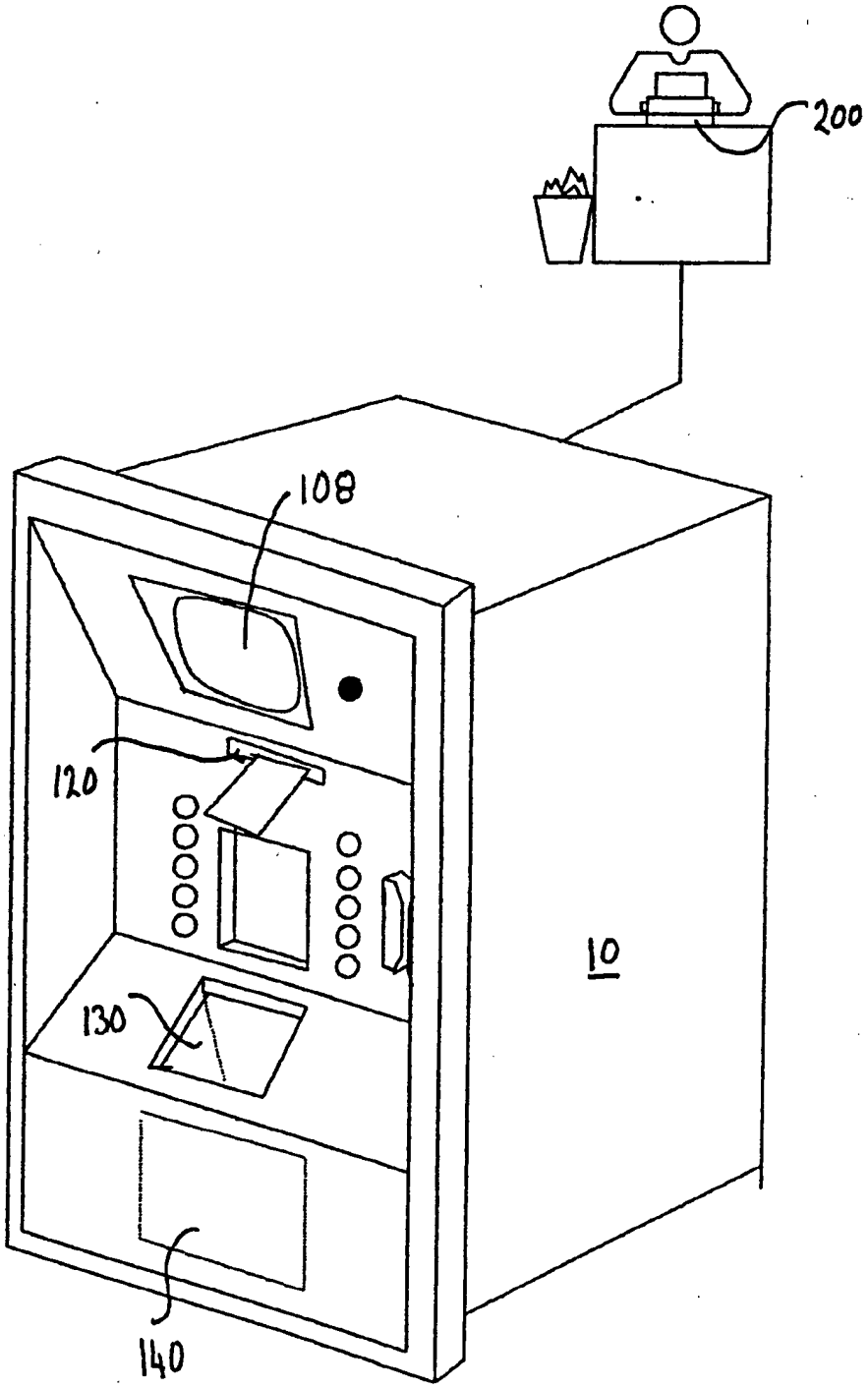

Fig 6

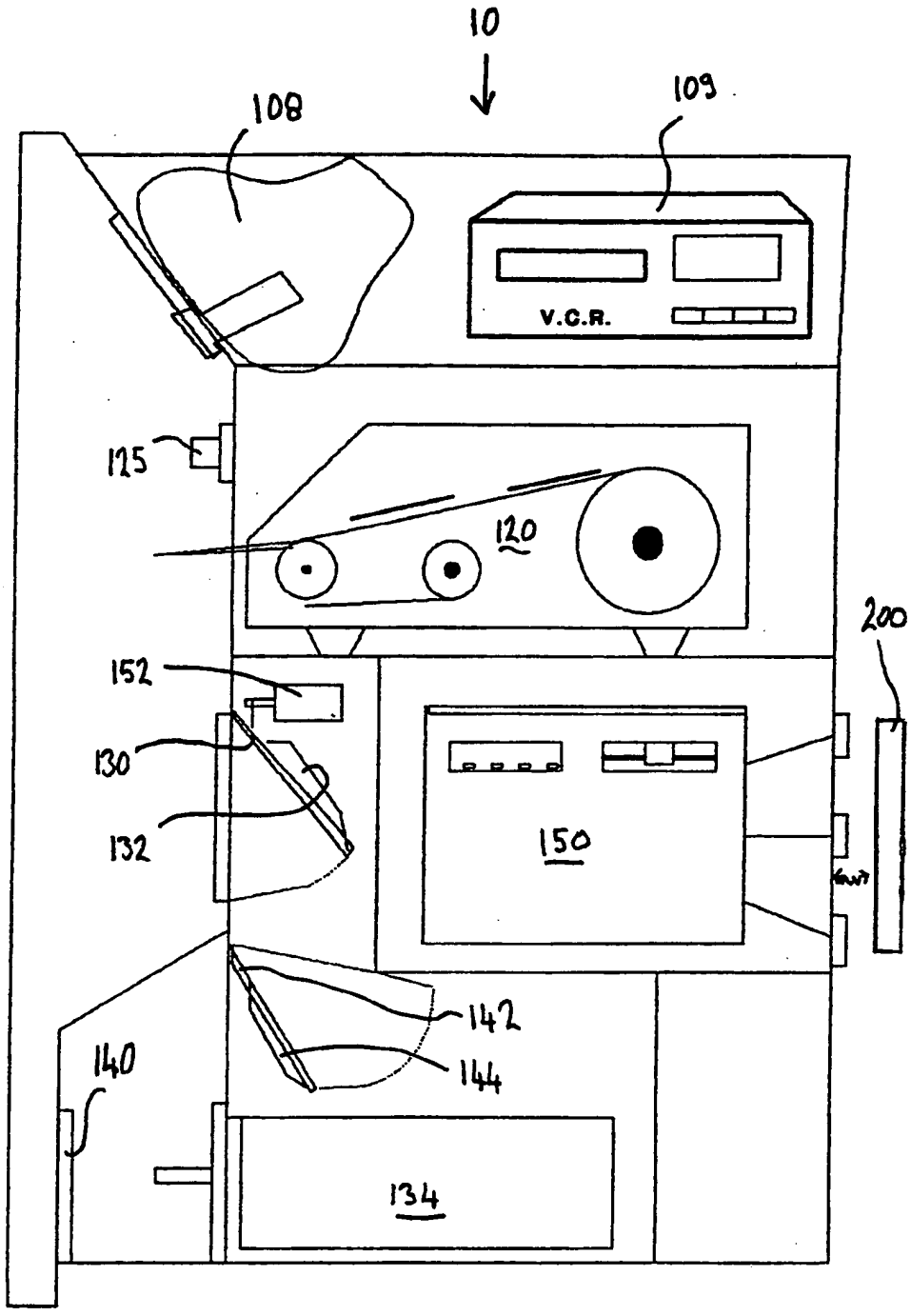

FIG 7

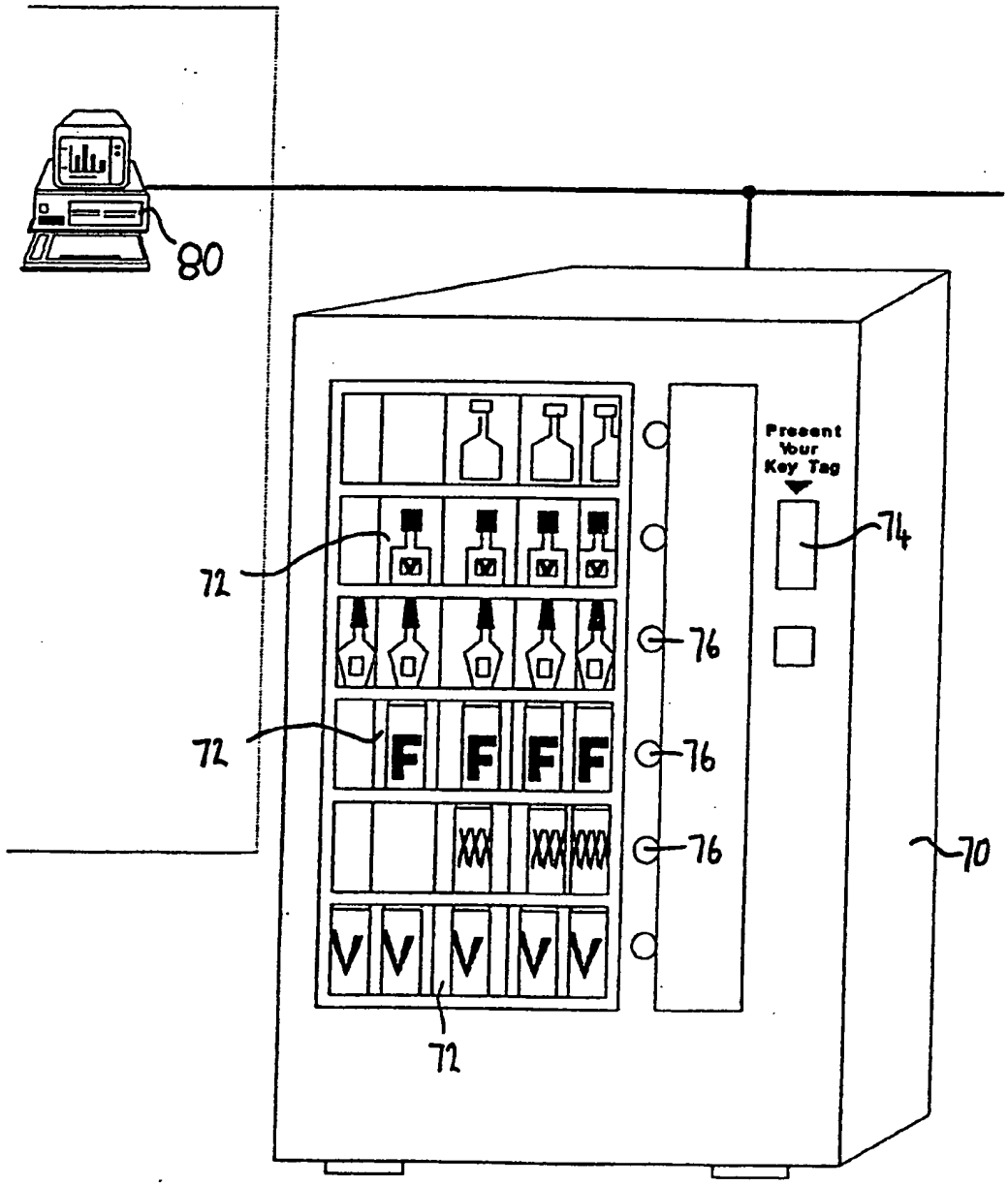

Fig 8

Rental Procedure for pre booked vehicles

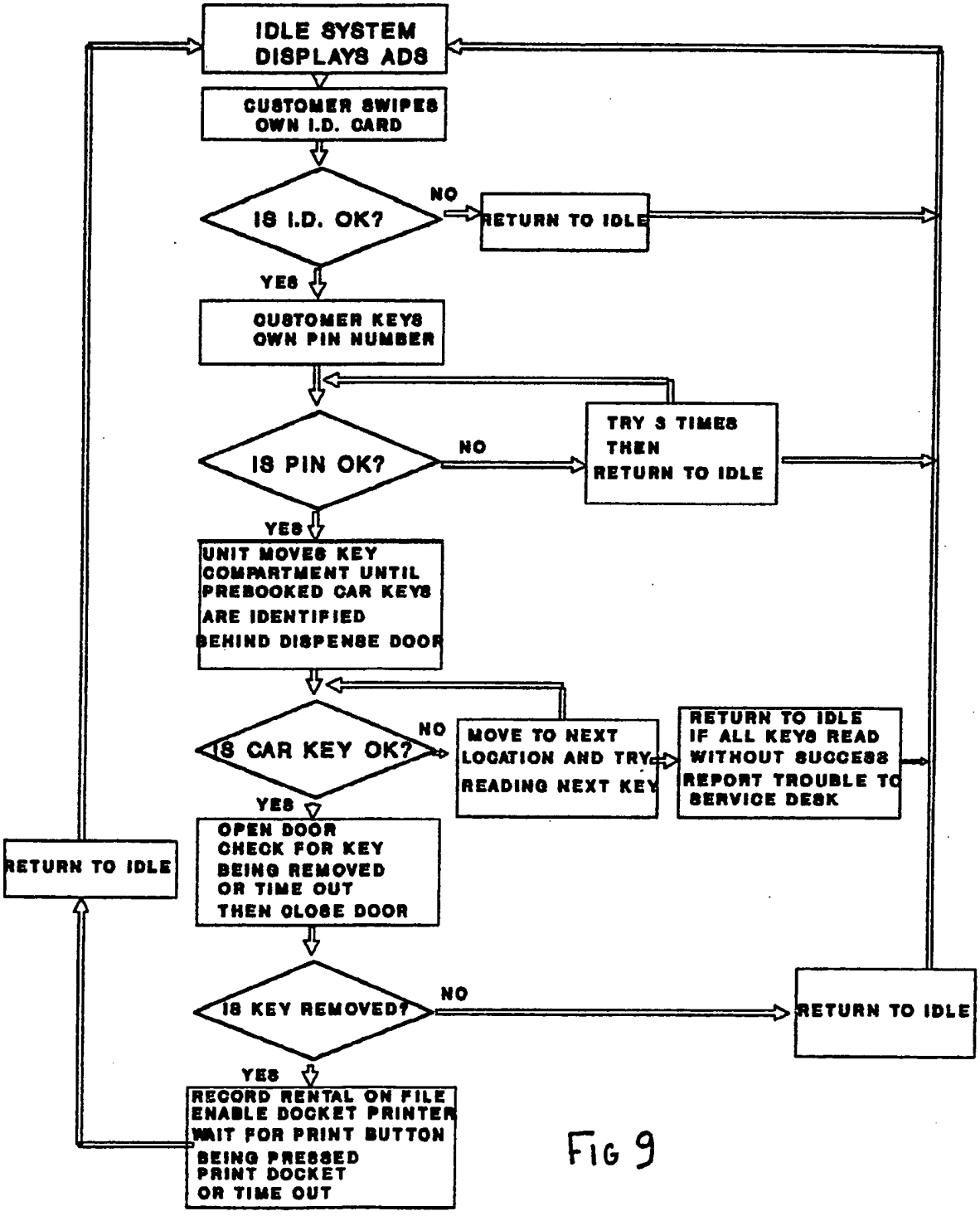

Fig 9

Rental Procedure for any Car

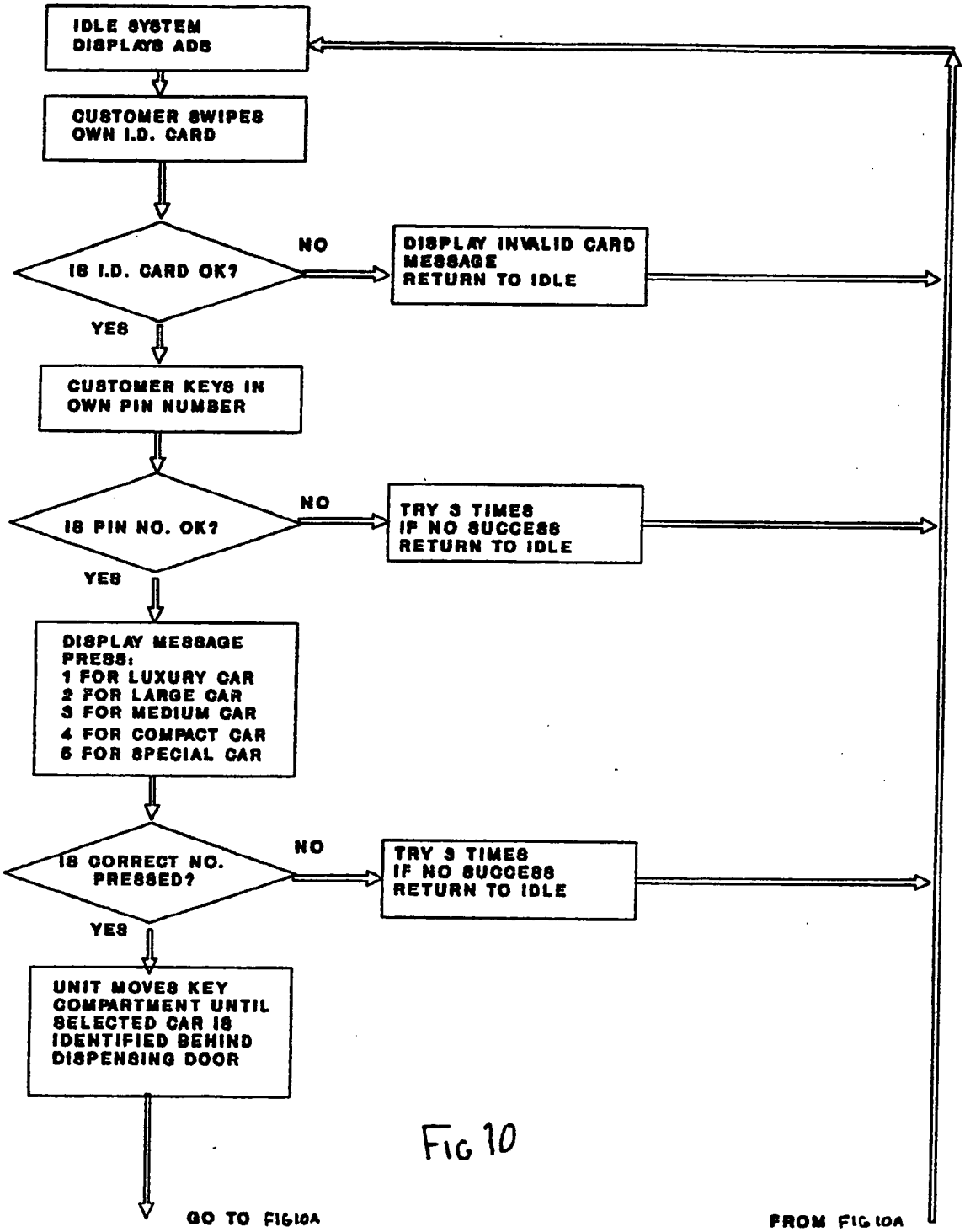

Fig 10

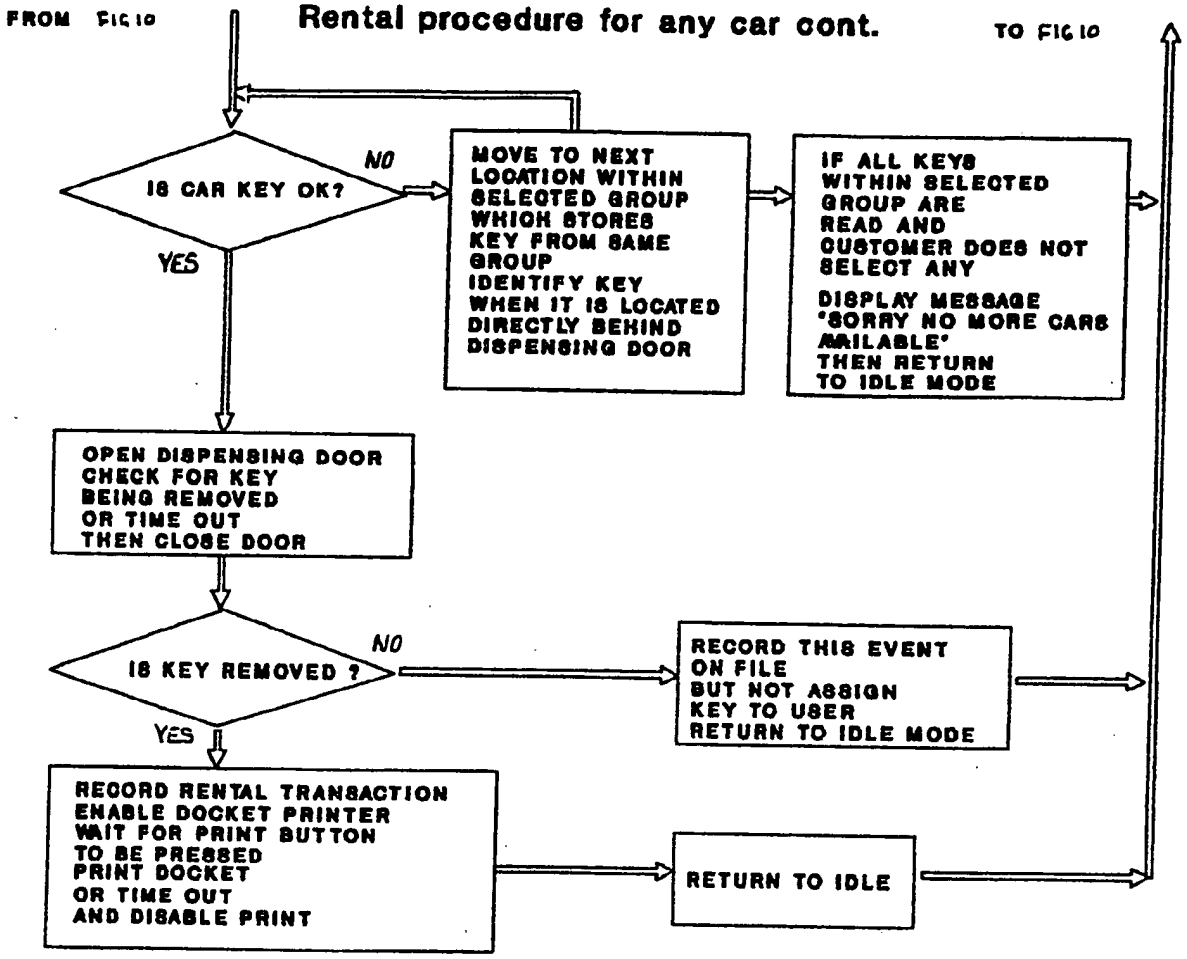
FROM FIG 10
Rental procedure for any car cont.
TO FIG 10
IS CAR KEY OK?
NO
YES
MOVE TO NEXT LOCATION WITHIN SELECTED GROUP WHICH STORES KEY FROM SAME GROUP IDENTIFY KEY WHEN IT IS LOCATED DIRECTLY BEHIND DISPENSING DOOR
IF ALL KEYS WITHIN SELECTED GROUP ARE READ AND CUSTOMER DOES NOT SELECT ANY
DISPLAY MESSAGE 'SORRY NO MORE CARS AVAILABLE' THEN RETURN TO IDLE MODE
OPEN DISPENSING DOOR CHECK FOR KEY BEING REMOVED OR TIME OUT THEN CLOSE DOOR
IS KEY REMOVED ?
NO
YES
RECORD THIS EVENT ON FILE BUT NOT ASSIGN KEY TO USER RETURN TO IDLE MODE
RECORD RENTAL TRANSACTION ENABLE DOCKET PRINTER WAIT FOR PRINT BUTTON TO BE PRESSED PRINT DOCKET OR TIME OUT AND DISABLE PRINT
RETURN TO IDLE

Fig 10A

Key Collection Procedure for Fleet Cars

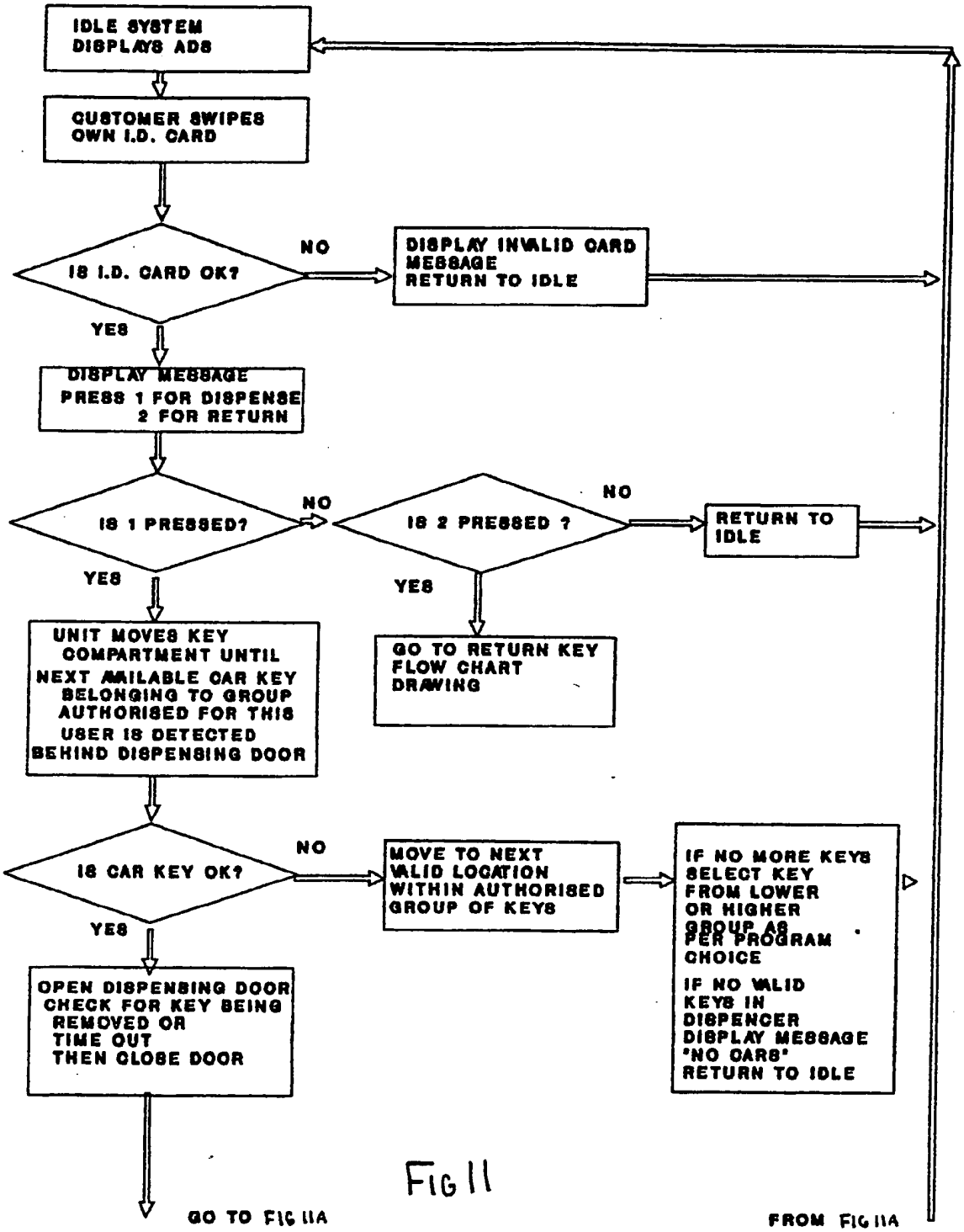

FIG 11

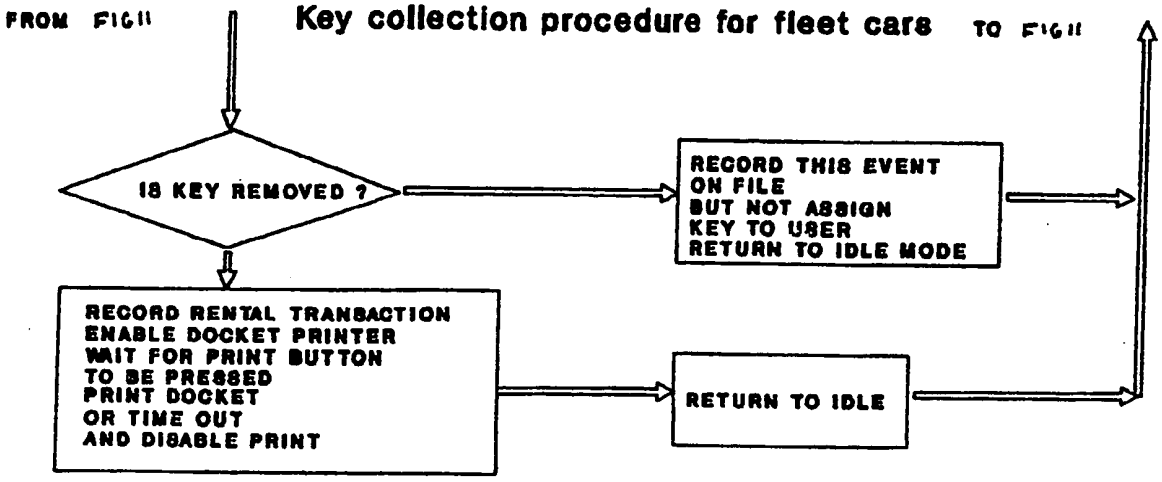
FROM FIG11
Key collection procedure for fleet cars
TO FIG11
IS KEY REMOVED ?
RECORD THIS EVENT
ON FILE
BUT NOT ASSIGN
KEY TO USER
RETURN TO IDLE MODE
RECORD RENTAL TRANSACTION
ENABLE DOCKET PRINTER
WAIT FOR PRINT BUTTON
TO BE PRESSED
PRINT DOCKET
OR TIME OUT
AND DISABLE PRINT
RETURN TO IDLE

FIG 11A

Fast car key Return Procedure

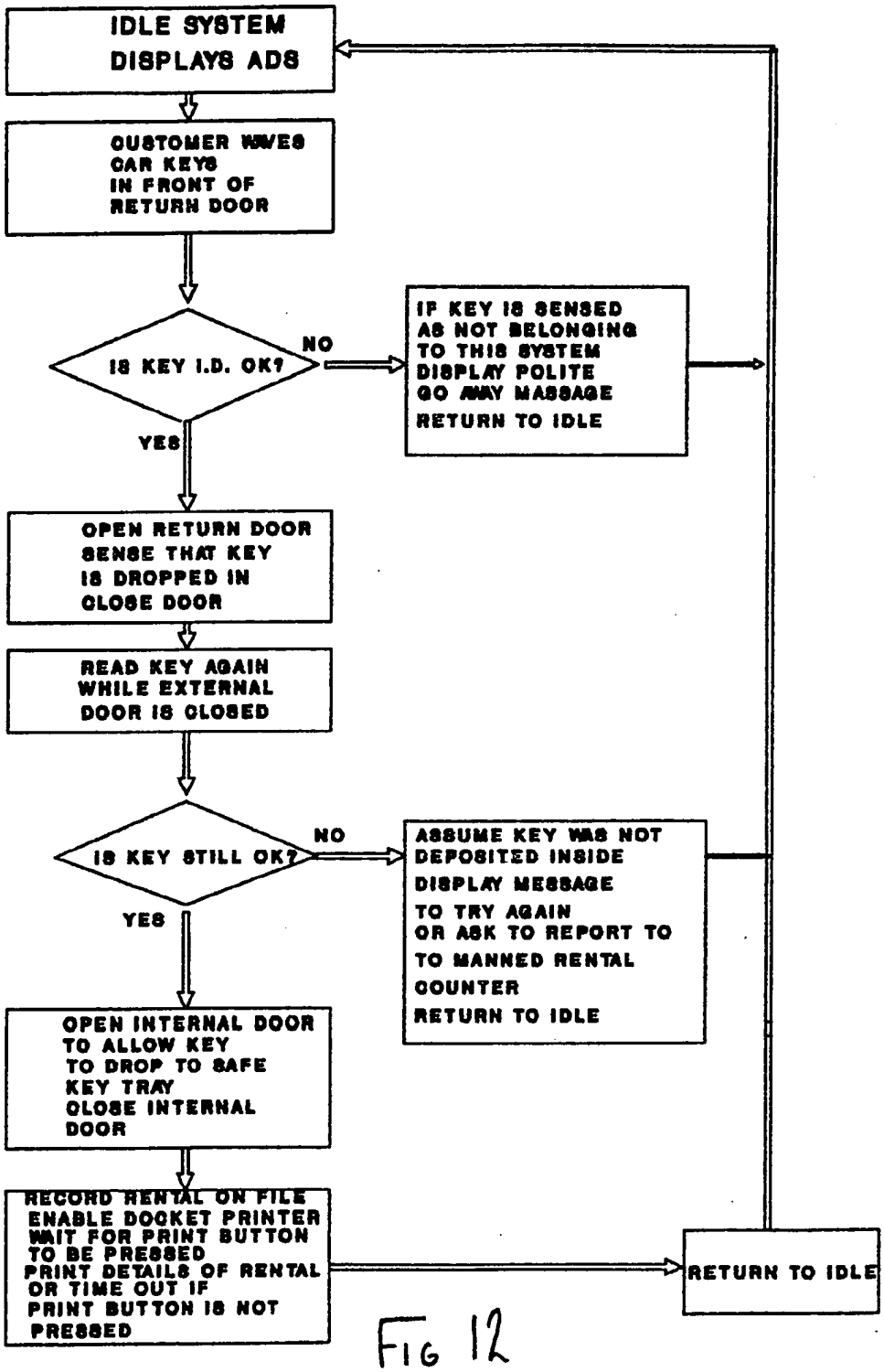

FIG 12

Key Return Procedure for Fleet Cars

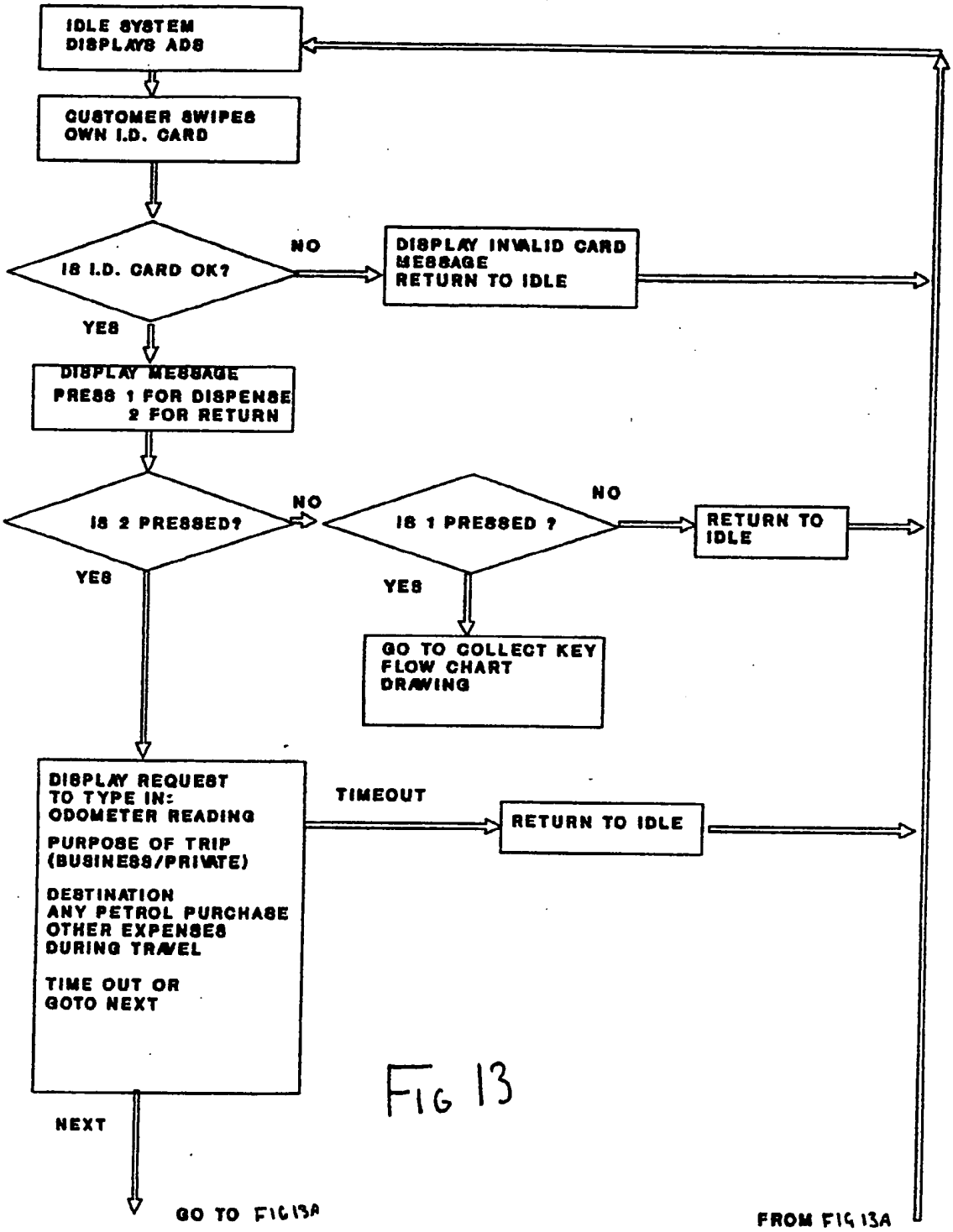

FIG 13

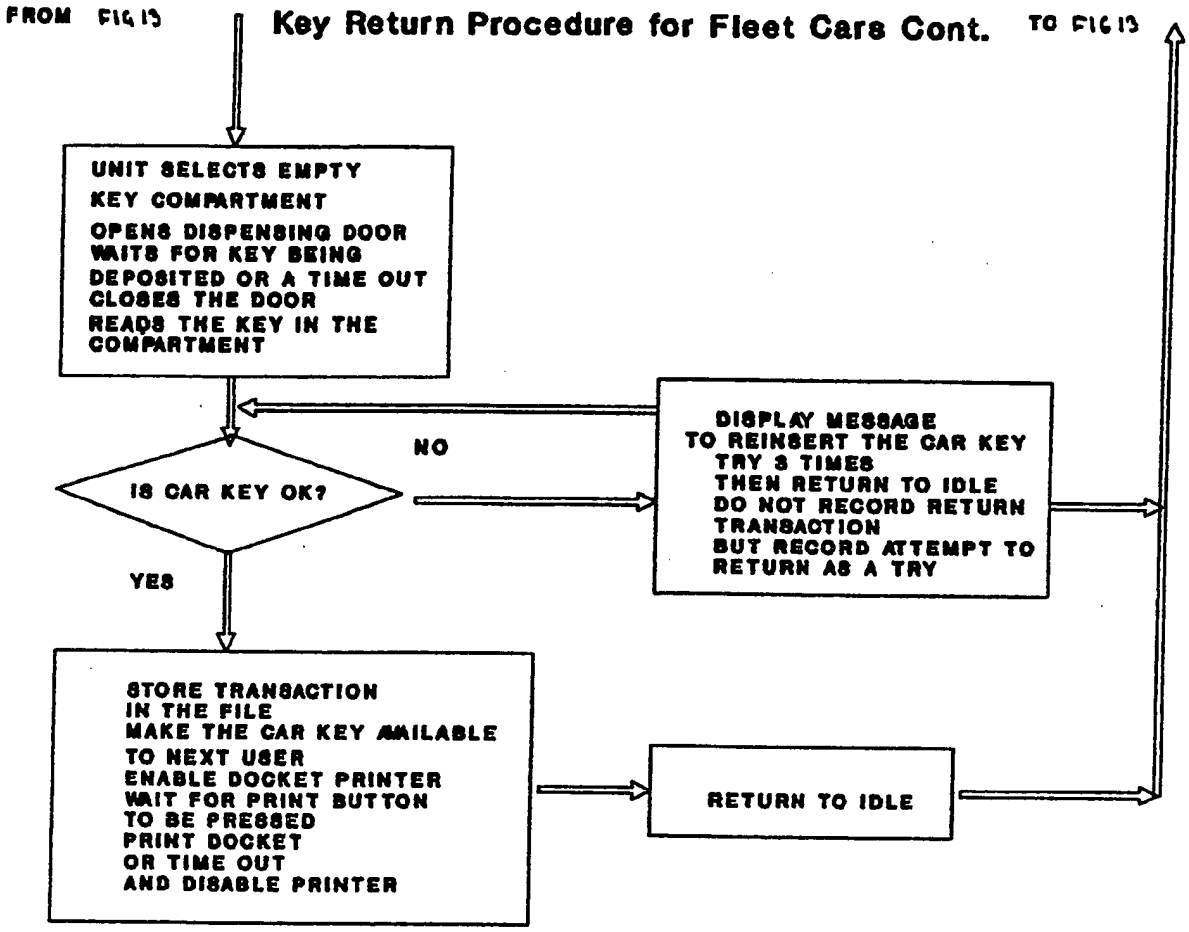
FROM FIG 13
Key Return Procedure for Fleet Cars Cont.
TO FIG 13
UNIT SELECTS EMPTY KEY COMPARTMENT
OPENS DISPENSING DOOR
WAITS FOR KEY BEING DEPOSITED OR A TIME OUT
CLOSES THE DOOR
READS THE KEY IN THE COMPARTMENT
IS CAR KEY OK?
NO
DISPLAY MESSAGE TO REINSERT THE CAR KEY
TRY 3 TIMES
THEN RETURN TO IDLE
DO NOT RECORD RETURN TRANSACTION
BUT RECORD ATTEMPT TO RETURN AS A TRY
YES
STORE TRANSACTION IN THE FILE
MAKE THE CAR KEY AMILABLE TO NEXT USER
ENABLE DOCKET PRINTER
WAIT FOR PRINT BUTTON TO BE PRESSED
PRINT DOCKET
OR TIME OUT
AND DISABLE PRINTER
RETURN TO IDLE

FIG 13A

INTERNATIONAL SEARCH REPORT

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)[6]

According to International Patent classification (IPC) or to both National Classification and IPC

Int. Cl.[5] G07F 7/08, 17/00, 7/06; G07G 5/00

II. FIELDS SEARCHED

Minimum Documentation Searched [7]

Classification System	Classification Symbols
IPC	G07F 7/08, 7/06, 17/00

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched [8]

AU : IPC as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT [9]

Category*	Citation of Document, [11] with indication, where appropriate of the relevant passages [12]	Relevant to Claim No [13]
X,P Y	EP,A, 349284 (FLIXCORP OF AMERICA LTD) 3 January 1990 (03.01.90) whole document, see especially column 6 lines 10-24, column 7 lines 4-40 and column 11 lines 55-60.	(1-5,7-8,10-11,14) (12,13)
X Y	AU,A, 23266/88 (MIDWAY VIDEO LTD) 9 March 1989 (09.03.89) whole document, see especially page 17 lines 12-21, page 18 line 35 to page 22 line 28, page 23 lines 7-21 and figures 2 and 3.	(1,10-11,14) (2-4,7-10,12-13)
X,Y Y	EP,A, 286130 (OMRON TATEISI ELECTRONICS CO) 12 October 1988 (12.10.88) see especially column 7 line 16 to column 8 line 12 and column 9 lines 20-32.	(2-4,7-8,10-11,14) (12-13)
X,Y Y	AU,A, 73629/87 (BRADT et al) 3 December 1987 (03.12.87) whole document, see especially page 9 lines 12-26 and page 48 lines 8-33.	(1-5,7-8,10-11,14) (12-13)

(contd)

* Special categories of cited documents : [10]

"A" Document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior t the international filing date but later than the priority date claimed

"T" Later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
1 October 1991 (01.10.91)	8 October 91
International Searching Authority **AUSTRALIAN PATENT OFFICE**	**Signature of Authorized Officer** M. Tubb M. TUBB

FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

X,Y	AU,A, 69857/87 (MICROTEL LIMITED) 17 September 1987 (17.09.87) whole document, see especially page 4 line 26 - page 6 line 2.	(11-14)
X,Y	AU,B, 58847/86 (576965) (INTERNATIONAL BUSINESS MACHINES CORPORATION) 18 December 1986 (18.12.86) whole document, see especially page 8 lines 18-24, page 9 line 38 to page 11 line 4 and page 12 lines 21-23.	(1-7,11-14)
X,Y Y	AU,B, 53417/86 (579003) (NELSON VENDING TECHNOLOGY LIMITED) 21 August 1986 (21.08.86) whole document, see especially page 9 line 10 to page 11 line 23, page 20 line 10 to page 21 line 7 and page 31 line 11 to page 32 line 8.	(1-8,10-11,14) (12-13)
X Y	AU,B, 84137/82 (555713) (VIDEO CORPORATION OF AMERICA) 6 January 1983 (06.01.83) whole document, see especially page 1 line 1 to page 6 line 7.	(2-4,7-8,10-11,14) (12-13)

(contd)

V. ☐ OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE [1]

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim numbers , because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claim numbers , because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claim numbers , because they are dependent claims and are not drafted in accordance with the second and third sentences of PCT Rule 6.4a

VI. ☐ OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING [2]

This International Searching Authority found multiple inventions in this international application as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.
2. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:

3. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers:

4. ☐ As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest

☐ The additional search fees were accompanied by applicant's protest.

☐ No protest accompanied the payment of additional search fees.

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)

Category*	Citation of Document, [11] with indication, where appropriate of the relevant passages [12]	Relevant to Claim No [13]
X Y	AU,B, 81013/82 (554855) (JOHLAR ENTERPRISES, INC) 9 September 1982 (09.09.82) see especially page 13 line 19 to page 14 line 15 and page 23 line 5 to page 25 line 8.	(2-5,7-8,10-11,14) (12-13)
X,Y	US,A, 4120452 (KIMURA et al) 17 October 1978 (17.10.78) see abstract.	(11-14)

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON INTERNATIONAL APPLICATION NO. PCT/AU 91/00294

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report	Patent Family Member		
AU 23266/88	EP 409831	US 4860876	WO 8901675
EP 286130	JP 63251885	JP 63251888	JP 1014692
AU 73629/87	EP 249367	IL 82696	JP 1162996
	US 4814592	ZA 8703874	US 4839505
AU 69857/87	EP 410008		
AU 58847/86	CA 1243384	EP 206639	ES 556018
	ES 556061	ES 8801738	JP 61288265
	US 4752876	ES 8801755	EP 206628
	JP 61289645	PH 24039	US 4687693
AU 53417/86	CA 1260117	EP 191636	JP 61262995
AU 84137/82	US 4414467	CA 1169147	EP 68642
	JP 58006549	DE 3040554	FR 2475251
	GB 2063541	JP 56074769	US 4300040
AU 81013/82	CA 1195642	DE 3273505	EP 60643
	HK 250/89	JP 57168393	NZ 199808
	NZ 210475	NZ 210476	SG 709/88
	US 4458802		
US 4120452	CA 1085055	DE 2636610	FR 2321157
	GB 1556186	JP 52031632	

END OF ANNEX